IN THE CLAIMS

Claims 1 to 5 (withdrawn)

Claim 6 (currently amended) A method of producing a waveguide photodetector ~~having a waveguide~~ of a silicon-based material, comprising the steps of:

a/ depositing a metal layer on a silicon-based material layer of a substrate;

b/ etching to selectively remove unwanted regions of said metal layer; and

c/ heating said metal layer to induce a metal-silicon reaction to produce at least two separated silicide regions, said at least two separate silicide regions forming opposite side walls of said waveguide photodetector, said silicide region regions acting as mirrors and electrodes for said waveguide photodetector ~~of silicon-based material therebetween~~.

Claim 7 (currently amended) The method of producing a waveguide photodetector according to claim 6, wherein said substrate is silicon-on-insulator (SOI) substrate.

Claim 8 (currently amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material is one of a group of materials comprising: silicon, amorphous silicon, silicon germanium, and amorphous silicon germanium.

Claim 9 (currently amended) The method of producing a waveguide photodetector according to claim 6, wherein said two separated silicide regions are produced using a metal belonging to a group of metals comprising: nickel, platinum, tungsten, and cobalt.

Claim 10 (currently amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material layer is made of silicon and epitaxially grown silicon germanium superlattices.

Claim 11 (currently amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material layer is made of silicon germanium allow and a layer of silicon.

Claim 12 (currently amended) A method of producing a waveguide photodetector ~~having a waveguide~~ of a silicon-based material, comprising steps of:

a/ forming a ridge in a silicon-based material layer of a substrate and applying a mask on top of said ridge;

b/ depositing a metal layer on said silicon-based material layer of said substrate;

c/ heating said metal layer to induce a metal-silicon reaction to produce at least two separated silicide regions, said at least two separated silicide regions forming opposite side walls of said waveguide photodetector ~~therebetween~~; and

d/ etching to selectively remove unwanted metal from said mask without affecting said at least two separated silicide regions, said silicide regions acting as mirrors and detectors for said waveguide photodetector.

Claim 13 (currently amended) The method of producing a waveguide photodetector according to claim 12, wherein said substrate is a silicon-on-insulator (SOI) substrate.

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Claim 14 (currently amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material is one of a group of materials comprising: silicon, amorphous silicon, silicon germanium, and amorphous silicon germanium.

Claim 15 (currently amended) The method of producing a waveguide photodetector according to claim 12, wherein said two separated silicide regions are produced using a metal belonging to a group of metals comprising: nickel, platinum, tungsten, and cobalt.

Claim 16 (currently amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material layer is made of silicon and epitaxially grown silicon germanium superlattices.

Claim 17 (currently amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material layer is made of silicon germanium alloy and a layer of silicon.